

SJ08-2002-0264 Stitched writer des with Al<sub>2</sub>O<sub>3</sub> bump to control write saturation - continu

Exhibit A

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.

P1 defined throat, sunken coil and flat P2 are key design features in IBM Bionic design. We need to reduce throat height to improve write efficiency as track width/write gap length decreases with future high density product. The challenge has been to control P1 saturation without compromising saturation.

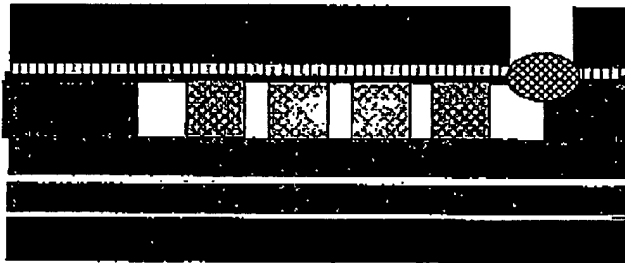
This invention teaches a method to reduce flux from P2 to P1 so that the optimal writing performance can be achieved at short throat height.

2. How does the invention solve the problem or achieve an advantage, (a description of "the invention", including figures inline as appropriate)?

Scheme a

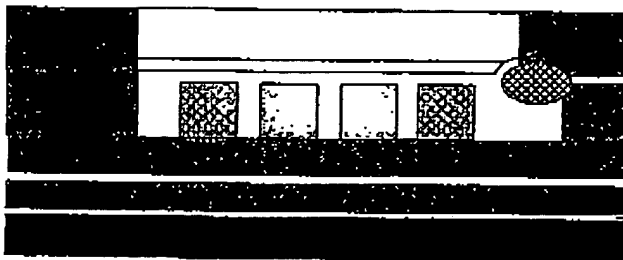
Option A: Define P2 bump before write gap

P1 CMP  
CMP stopper (Ta or C)  
Photo  
Ion mill  
Bump formation deposition



Option A:

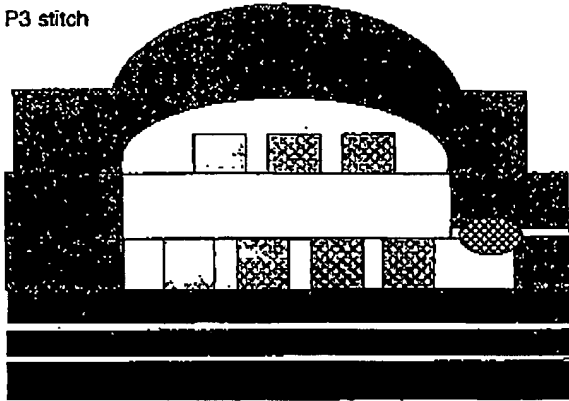
Deposit write gap  
Define P2 layer  
Planarization



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Option A:

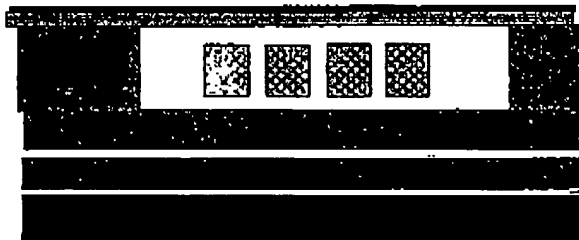
Coil 2  
P3 stitch



Scheme B

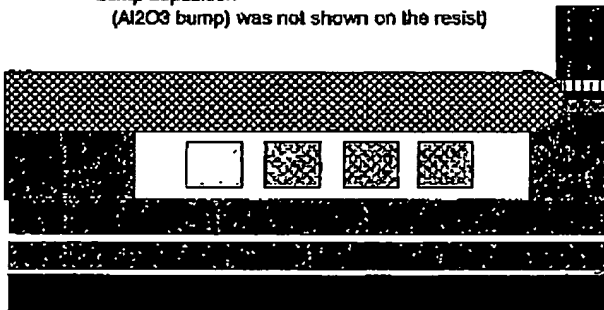
Option B: Define P2 bump after write gap

P1 CMP  
Lamination gap  
CMP stopper (Ta or C)  
Photo  
Ion mill  
Bump formation fill



Option B: Define P2 bump after write gap

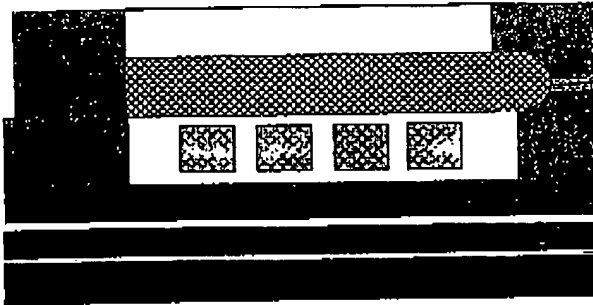
Photo  
Ion mill  
Trim  
bump deposition  
(Al<sub>2</sub>O<sub>3</sub> bump) was not shown on the resist)



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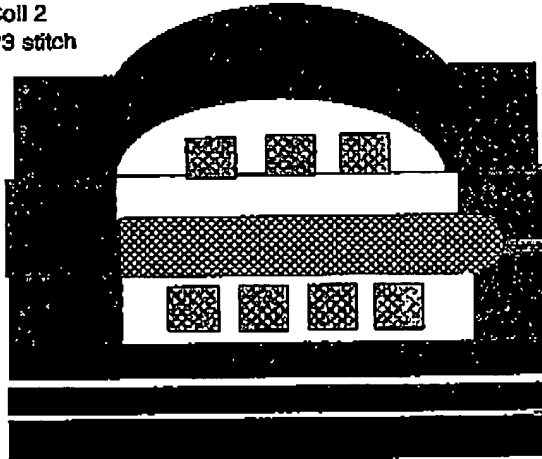
### Option B: Define P2 bump after write gap

P2 formation  
P2 planarization



### Option B:

Coil 2  
P3 stitch



3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?  
no

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.  
no

**\*Critical Questions (Questions 1-9 must be answered in English)**

#### \*Question 1

On what date was the invention workable? 04/13/2002 Please format the date as MM/DD/YYYY